

Remarks

I. Introduction

This is in response to the Office Action dated May 5, 2005. The Office Action rejected claims 1-6 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,282,170 (Bentall) in view of U.S. Patent No. 5,812,524 (Moran). Claims 7-11 were rejected under 35 U.S.C. §103(a) as being unpatentable over Bentall in view of Moran and further in view of U.S. Patent No. 6,600,719 (Chaudhuri). In response, Applicants have amended claims 1-11. Claims 12-19 have previously been canceled. Claims 1-11 remain for consideration.

II. Rejections under 35 U.S.C. §103

Claims 1-6 were rejected under 35 U.S.C. §103(a) as being unpatentable over Bentall in view of Moran. However, neither of the cited references, either alone or in combination, disclose Applicants' invention.

Applicants invention is directed to selecting restoration paths in a telecommunications network having a plurality of nodes. Applicants invention includes a source node sending a first message along a service path to a destination node. The source node then receives from the destination node a second message via a return path. The second message contains an array storing a restoration link capacity for each link in the return path not in the service path. At least some of the nodes in the return path update the array upon receipt of the second message. The source node selects a restoration path through the network from the source node to the destination node using the array. The source node reserves resources for the restoration path in the network.

Bentall is directed to a method of restoring a route set up in a network following a failure of part of the network. Messages are sent along alternative routes to determine spare capacity of each link of alternative routes around a broken part of the network.

Moran discloses a deterministic approach to restore disrupted traffic in a distributed network. Moran provisions, in each of the nodes of the network, a

memory table for storing a plurality of weights, each weight being identified with an input connection to the node (col. 2, lines 34-38). "When a fault occurs at a working link connecting two adjacent nodes, upon detection of the fault, by convention, one of the nodes is designated a sender node while the other a chooser node. The sender node initiates a restoration process by constructing a flooding signature (or restoration message) to begin the SHN [self healing network] process." (col. 2, lines 47-52). Restoration messages are propagated to downstream nodes in its search for an alternate route to the chooser node. When finally reaching the chooser node, each restoration message contains a weighed identifier whose value is a summation of all sections of the alternate route that the restoration message had traversed. The restoration message containing the optimal weighed identifier is chosen by the chooser node.

A reverse restoration message is transmitted by the chooser node to confirm the alternate route. When the reverse restoration message reaches the sender node, a weighted identifier should have the same value as it did when the sender node sent the initial restoration message. (col. 2, line 47-col. 3, line 48).

Independent claim 1 is directed to a method of selecting a restoration path in a mesh telecommunication network. Claim 1, as amended, contains the step of:

receiving, in response to the first message, a second message from the destination node via a return path, **the second message containing an array....**

The Office Action states that Bentall "does not disclose receiving a message from the destination node containing an array or matrix representing a restoration link capacity needed on each link over possible failures of the service path and using the received array to select a restoration path." (Office Action, page 3). The Office Action relies on Moran to cure the deficiencies of Bentall.

Moran fails to cure the deficiencies of Bentall. Moran does not disclose receiving a second message from the destination node containing an array, as claimed in amended claim 1. Moran does disclose a reverse restoration message being transmitted by the chooser node. The reverse restoration

message, however, is to confirm the alternate route and does not contain an array. The sender node only uses the reverse restoration message as a check. The reverse restoration message does have different fields but does not have an array as claimed. Instead, the reverse restoration message is a verification that the route chosen by the chooser node is the optimal alternate route.

Claim 1, as amended, also contains the step of:

receiving, in response to the first message, a second message from the destination node via a return path, the second message containing an array storing a restoration link capacity for each link in the return path not in the service path....

As described above, the Office Action states that Bentall “does not disclose receiving a message from the destination node containing an array or matrix representing a restoration link capacity needed on each link over possible failures of the service path and using the received array to select a restoration path.” (Office Action, page 3). The Office Action relies on Moran to cure the deficiencies of Bentall.

With respect to Moran, none of the fields in Moran’s reverse restoration message represent a restoration link capacity. Instead, the reverse restoration message is only a verification of the alternate route selected by the chooser node. The sender node does not determine a restoration link capacity from the reverse restoration message – the sender node instead determines whether the reverse distance field value is zero to ensure that the optimal path has been selected.

Claim 1, as amended, also contains the step of:

selecting a restoration path through the network from the source node to the destination node using the array....

The Office Action states that Bentall “does not disclose receiving a message from the destination node containing an array or matrix representing a restoration link capacity needed on each link over possible failures of the service

path and using the received array to select a restoration path.” (Office Action, page 3). The Office Action relies on Moran to cure the deficiencies of Bentall.

Moran fails to cure these deficiencies of Bentall because Moran’s sender node does not use the reverse restoration message to select a restoration path. The Office Action states that Moran’s sender node uses “the array or matrix (Figure 2B) to confirm the optimal alternative route.” (Office Action, Page 4). The reverse restoration message is a confirmation that the alternate route **already selected** to which traffic disrupted between two nodes by a fault may be restored. (see col. 8, lines 48-52). Thus, the sender node does not use the reverse restoration message to select a path because Moran’s alternate route has already been determined before the reverse restoration message is transmitted. Thus, independent claim 1 is allowable over Bentall in view of Moran.

For the reasons discussed above, all independent claims are allowable over the cited art. Allowance of all independent claims is requested. All remaining claims are dependent upon an allowable independent claim and are therefore also allowable. In addition, the dependent claims add additional patentable subject matter and are also allowable for the reasons discussed below.

Dependent claim 5 claims that the resources for the restoration path are reserved by sending a fourth message along the restoration path to the destination node in the network. Bentall does not disclose sending a fourth message along the restoration path to the destination node in the network. Bentall does disclose a tandem node awaiting acknowledgement from the chooser node and then allocating some spare capacity to the virtual path. Bentall does not disclose sending a message along the restoration path to the destination node to reserve resources for the restoration path.

Moran fails to cure the deficiencies of Bentall. Moran does not disclose reserving resources by sending a fourth message along the restoration path to the destination node in the network. Therefore, dependent claim 5 is allowable over Bentall, either alone or in combination with Moran.

Dependent claims 7-11 were rejected under 35 U.S.C. §103(a) as being unpatentable over Bentall in view of Moran and further in view of Chaudhuri. Dependent claims 7 and 8 claim that nodes in the network are cross-connects or optical cross-connects. The Office Action states that Bentall does not explicitly teach the nodes in the communications network being optical cross-connects. Bentall also does not disclose the nodes in the communications network being cross-connects. Similarly, Moran does not disclose nodes in a network being cross-connects or optical cross-connects.

The Office Action relies on Chaudhuri to cure the deficiencies of Bentall and Moran. Chaudhuri is not available as a reference under §103(a). Under 35 U.S.C. §103(c), a patent to another which qualifies as prior art only under subsection §102(e) shall not preclude patentability under §103 where the patent and the claimed invention were, at the time the invention was made, owned by the same person. 35 U.S.C. §103(c). This portion of the statute is applicable to patent applications filed on or after November 29, 1999. The present application and Chaudhuri were, at the time the present invention was made, both owned by AT&T Corp (see Assignment for the present application, recorded on October 5, 2001 at Reel 012241, Frame 0187). The present application was filed on July 19, 2001 which is after the effective date (November 29, 1999) of the relevant portion of 35 U.S.C. §103(c). Therefore, Chaudhuri is unavailable as a reference for use in an obviousness rejection.

Dependent claim 10 claims that rows of a matrix (of the array) representing restoration link capacity are stored in master nodes of shared risk link groups. Dependent claim 11 claims that columns of the matrix are stored in master nodes of links in the network. The Office Action admits that Bentall does not disclose representing the restoration link capacity stored in master nodes to be sent in a matrix consisting of rows and columns. The Office Action relies on Moran to cure the deficiencies of Bentall.

Moran fails to cure the deficiencies of Bentall. Fig. 2A of Moran discloses the specific construction of the restoration message (col. 5, lines 45-46). Fig. 2B of Moran discloses the construction of the reverse restoration message (col. 8,

lines 18-20). Dependent claim 10 claims that *rows* of a matrix representing restoration link capacity are stored in master nodes of shared risk groups. Dependent claim 11 claims that *columns* of the matrix are stored in master nodes of links in the network. Moran does not disclose (e.g., in Fig. 2A or Fig. 2B) columns or rows of a matrix. Therefore, dependent claims 10 and 11 are allowable over Bentall in view of Moran.

Dependent claims 2-4, 6, and 9 are allowable for the reasons stated above and because they depend from an independent claim.

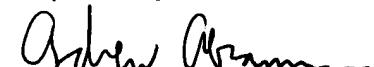
III. No New Matter has Been Added

The amendments to claim 1 do not add new matter. Support for the claim amendments are shown throughout the Specification and at least at Figs. 4 and 5, page 10, paragraph [0020] and at pages 11-12, paragraph [0022].

IV. Conclusion

For the reasons discussed above, all pending claims are allowable over the cited art. Reconsideration and allowance of all claims is respectfully requested.

Respectfully submitted,



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